Figure 1
WCT Symbols in Flow Diagrams and in Figures 1 through 23A

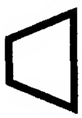
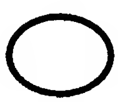
Symbol	Description	Notes
Combustion Engine (CE)	**Combustion Engine**	CE can be any combustion design as is known in the art, i.e. internal combustion engine, turbine, furnace, etc. CE combines fuel and ignites fuel with a spark generation device. Fuel is most preferably O_2, H_2 and H_2O. Fuel is preferably O_2 and H_2. Fuel can be used in combination with air.
	**Gas Compressor**	Used in Cryogenic Refrigeration. Designs are plentiful in the art. Compressor symbols: A = Air, D1 = First Distillation, D2 = Second Distillation, O1 = O_2, H1 = H_2, O = O_2 Storage and H = H_2 Storage.
	**Joule-Thompson Expansion Valve**	Two types are normally used in the art – 1. An expansion valve, 2. A cylinder.
	**Separation (Distillation Column)**	Diameter and Height dependent upon separation efficiency and loading. Separation efficiency dependent upon compounds separated and column packing. Distillation Temperatures are relative to Separation Operating Pressure. Depending on the desired O_2 purity, the second O_2/N_2 separation column is optional.
Q X'fer	**Heat Exchanger to cool compressed gases**	During normal operation, it is preferred that the waste N_2 is coolant. Depending upon design, upon start-up water may be necessary for an efficient start-up.
	**Cryogenic Storage Tank**	Tank is to be made of materials known in the art to withstand liquid cryogenic temperatures/pressure of O_2 and/or H_2. Tank may have refrigeration loop per Figure 13, which operates of off at least one of: the combustion engine, a battery and a fuel cell.
- + T	**Turbine**	Depending upon application, turbine is to be turned by steam, air or water movement. Turbine is preferred to generate electricity, preferably driving a generator and/or alternator. It is most preferred that the electricity performs electrolysis.
PC	**Pressure Controller**	Pressure controller can be of any design as is known in the art. PC protects downstream equipment from pressure surges. In high pressure surge situations, PC vents to the atmosphere.
Q	**Energy in the form of heat**	Energy is transferred (managed) during many methods, processes and systems of this invention.
C O N T	**Fuel Mixture Controller**	H_2, O_2, H_2O, air bypass and engine coolant. Controller manages fuel mixture ratios. H_2O ratio in combustion is managed depending upon combustion temperature and/or engine temperature. Air bypass is to be managed depending upon O_2 tank level. Engine coolant loop dependant on high engine temperature.

Figure 1A
WCT Symbols in Flow Diagrams and in Figures 1 through 23A

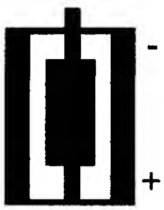
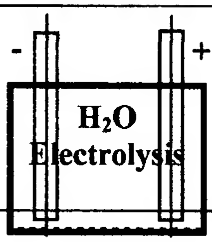
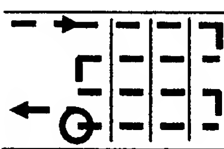
Symbol	Description	Notes
	Clutch	Used to transfer E_W to at least one of a flywheel and a generator. Clutch preferably engages during periods of little to no work and disengaged during periods of work. Design and assembly to be as known in the art.
	Flywheel	Used to store rotational kinetic energy during periods of little to no work; rotational energy to be utilized during periods of work.
	Generator	Used to generate electrical energy. Generator can be of the type to generate an alternating current (A/C), such as in power generation applications or a Dynamo to generate a direct current (D/C) to power electrolysis. A/C current can be turned into D/C with an A/C to D/C converter and D/C can be turned into A/C with a D/C to A/C converter.
	Electrolysis	Electrolysis of H_2O to O_2 and H_2 is to be performed. Electrolysis is to be performed by methods and systems known in the art of electrolysis. It is most preferred that an electrolyte be present in the H2O to further electrolysis and the efficiency of electrolysis. It is preferred that the electrolysis unit be cooled.
	Air Line	Line primarily contains air.
	O_2 Line	Line primarily contains O_2.
	N_2 Line	Line primarily contains N_2.
	H_2 Line	Line primarily contains H_2.
	H_2O Line	Line primarily contains H_2O.
	Products Line	Line primarily contains combustion products, preferably H_2O, yet can be H_2O and X, wherein X is N_2, CO_X and NO_X and can contain SO_X.
	Coolant (C) Line	Line symbol indicates flow of coolant, which is preferably used with electrolysis. C can be used with CE; however this is not preferred. C can be any type as is known in the art; coolant is preferred a mixture of water, glycol, corrosion inhibitor and dispersant.
	Control Line	Electrical or pneumatic line. Electrical wire carrying a small current, preferably 4 to 20 mA. Pneumatic line may carry a gas and/or a liquid under pressure.
	Flow Transmitter & Control Valve	Used in combination with control line and controller (CONT.) to control flow of fuel and/or coolant (C)
	Coolant Radiator	Used to release heat from coolant and pump back to heat source. Preferably used for electrolysis. Preferably used to cool oil for CE. It is not preferred to cool CE.

Figure 2
Traditional Combustion - Combustion Fueled by Hydrocarbon(s) and Air

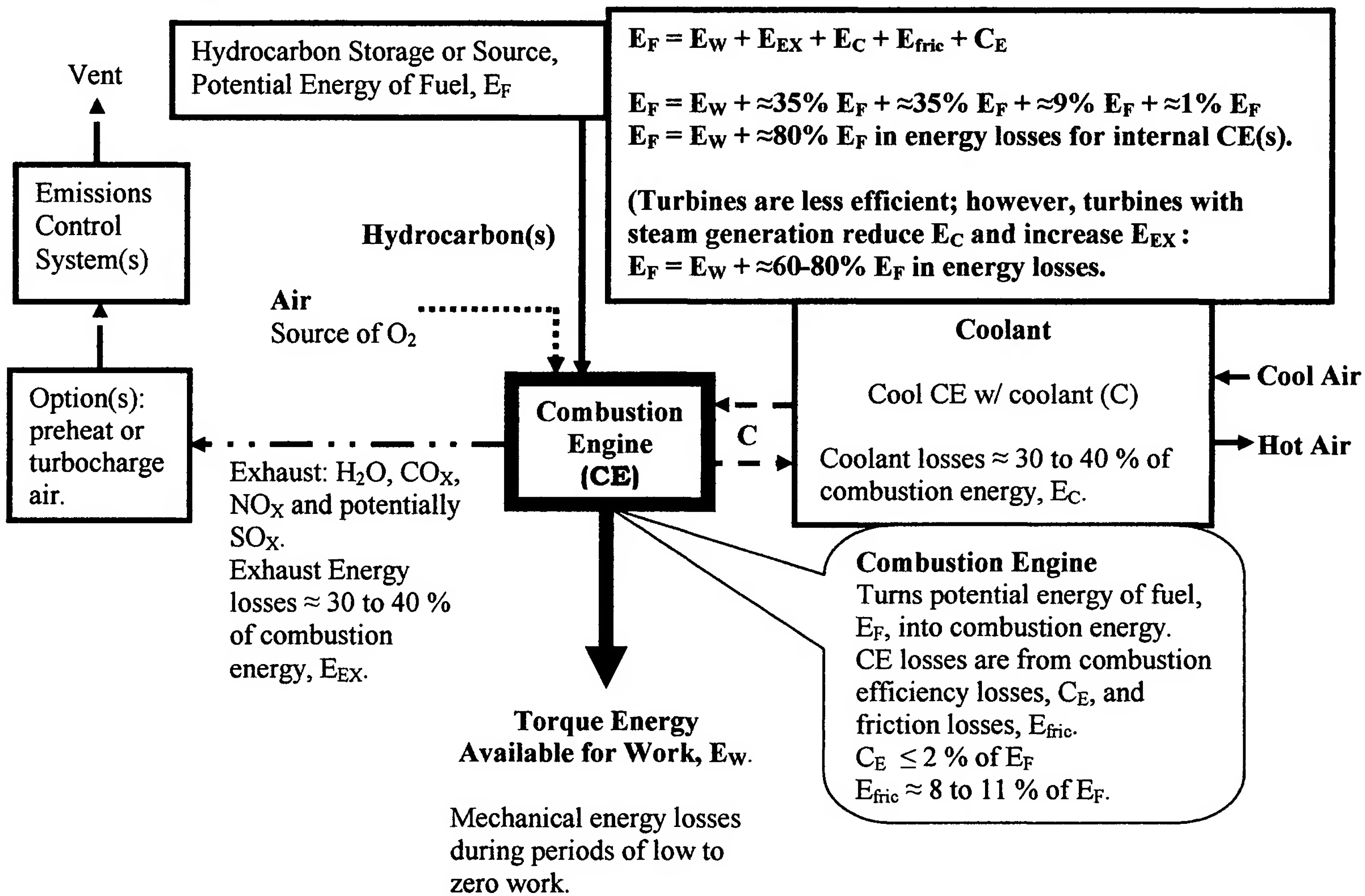


Figure 2A
Combustion Fueled by H_2 and O_2 Having Air as Alternate Source of O_2

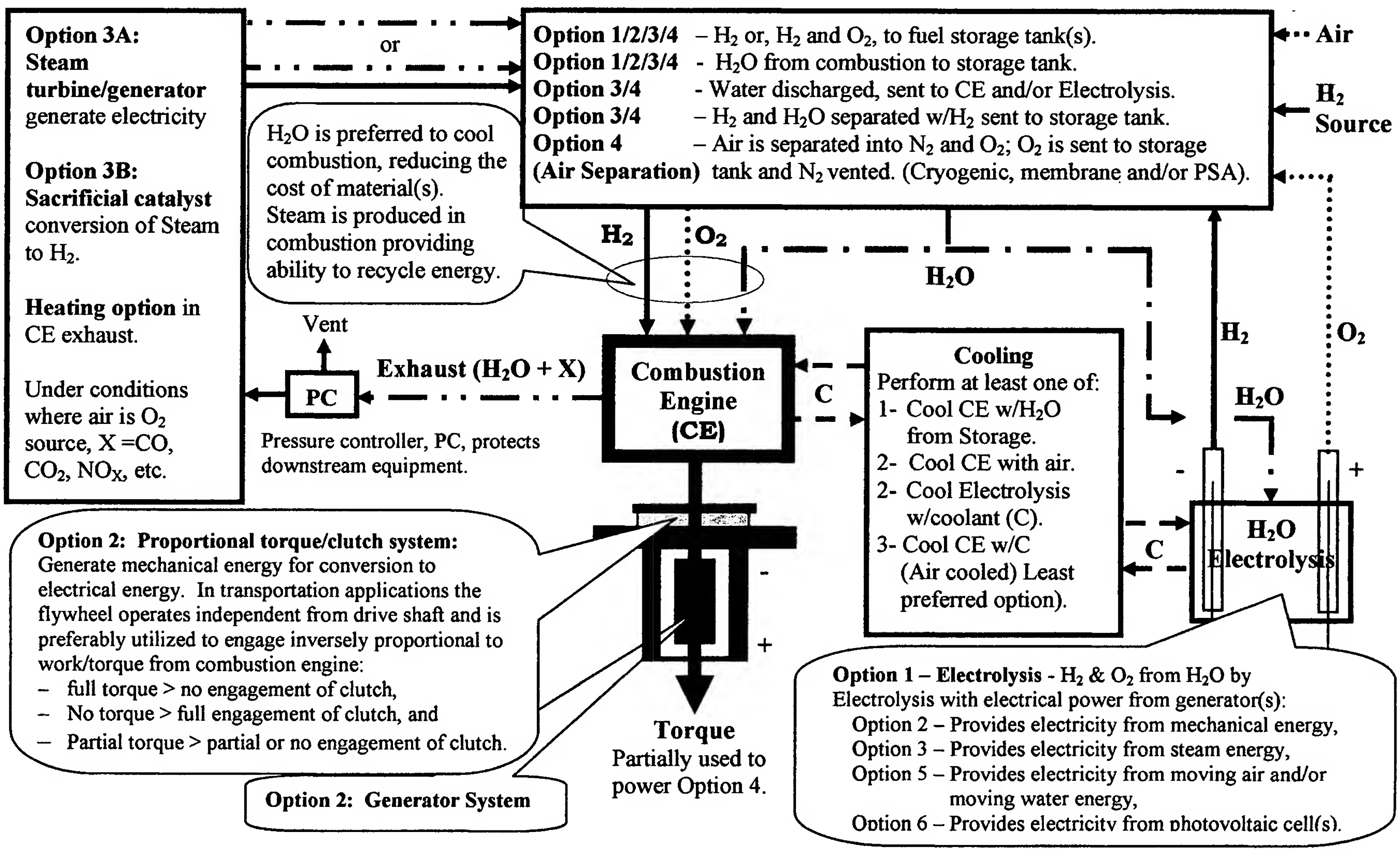


Figure 3

Combustion Fueled by H_2 and O_2 with Air as Alternate– Electrolysis

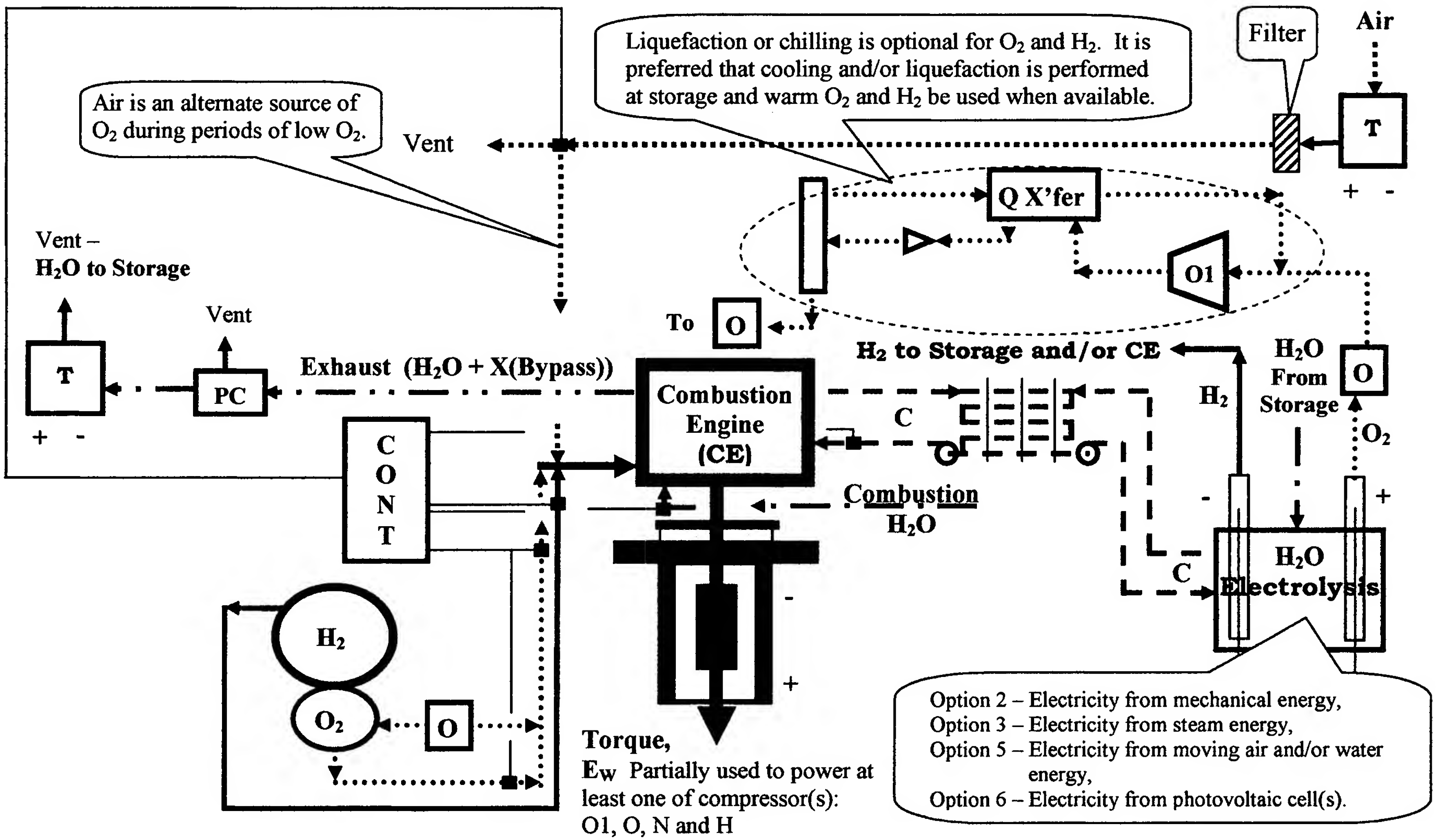


Figure 4

Combustion Fueled by H_2 and O_2 with Air as Alternate – H_2 Catalysis

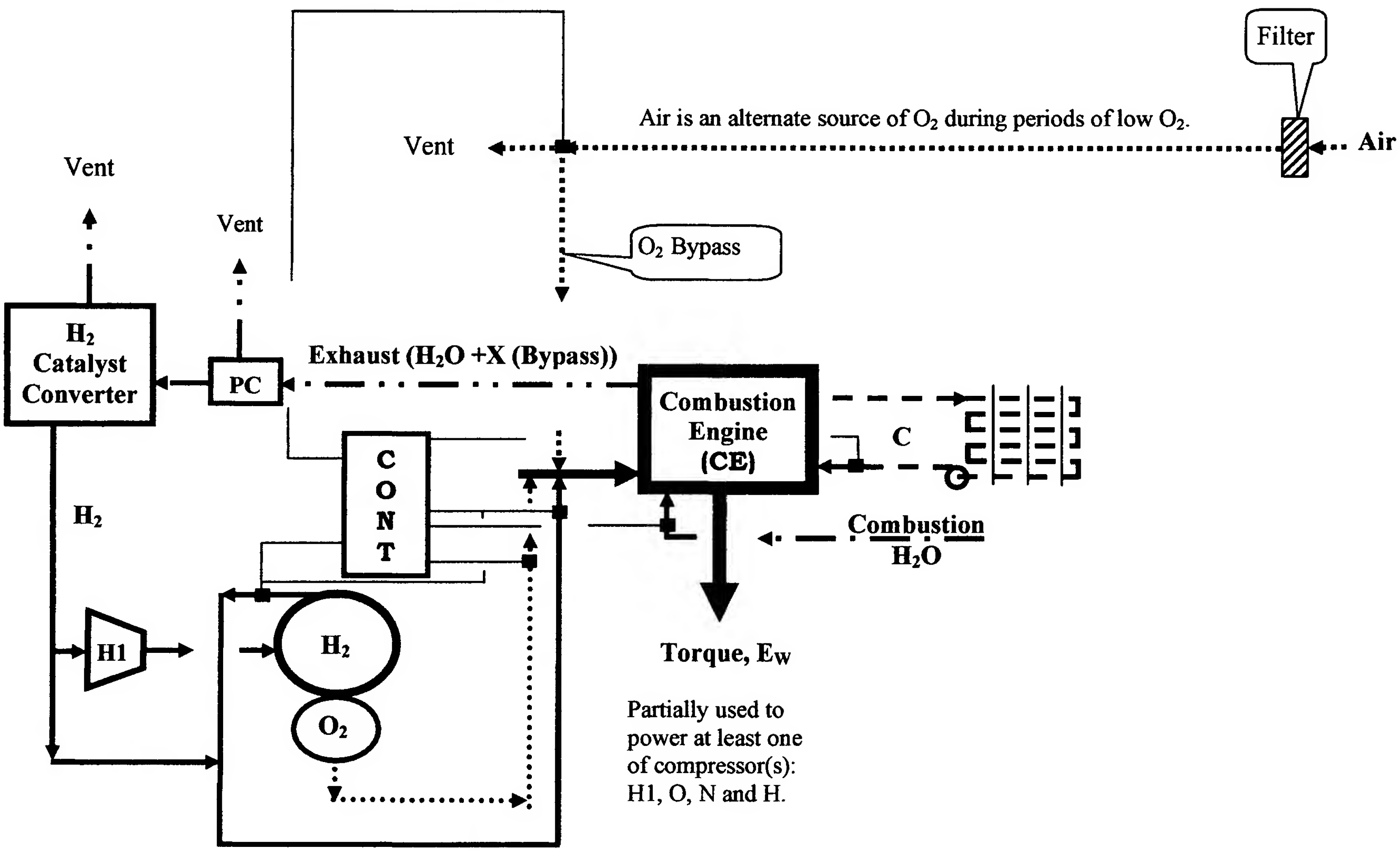


Figure 5
Combustion Fueled by H_2 and O_2 with Air as Alternate - O_2 Distillation

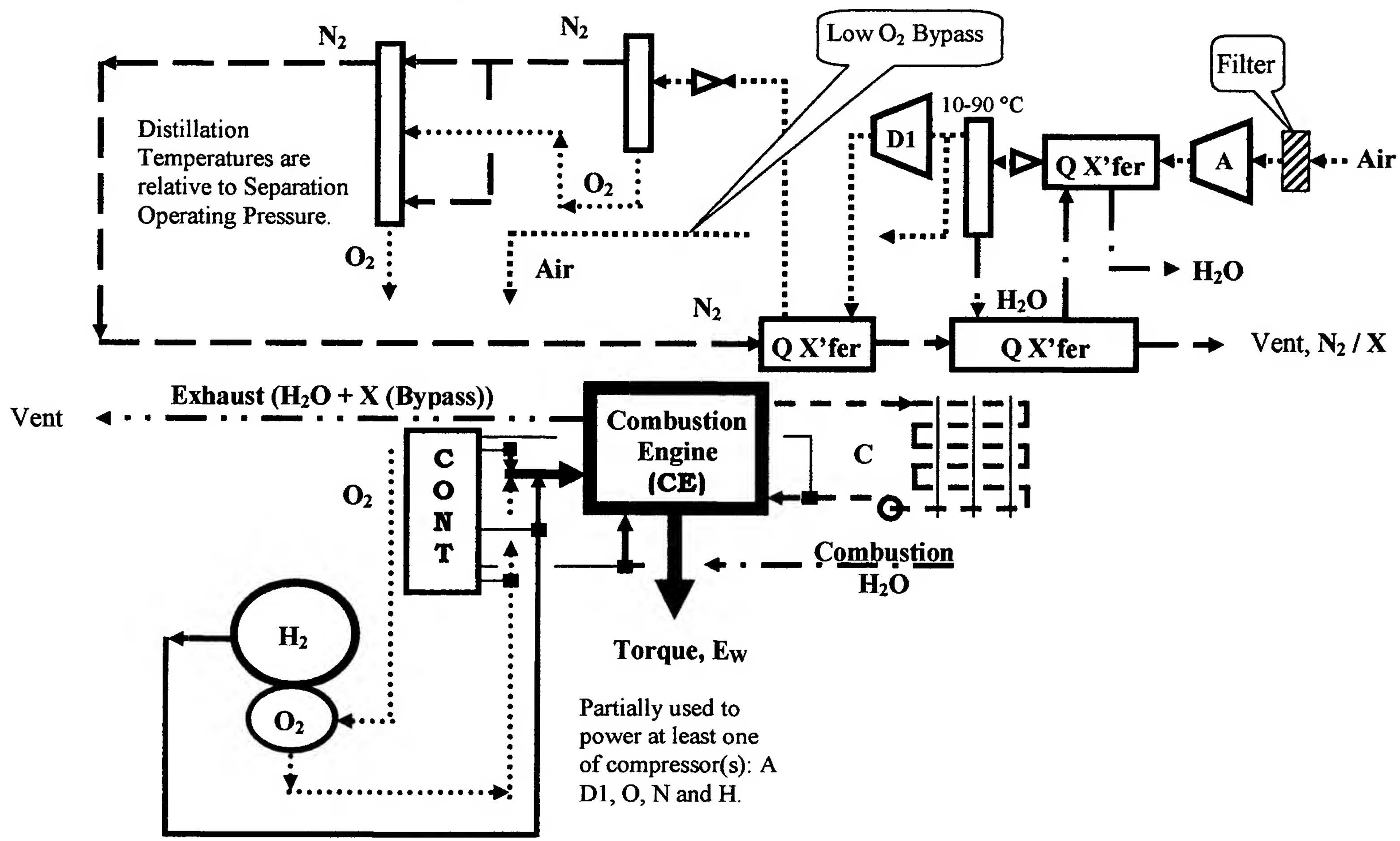


Figure 6

Combustion Fueled by H_2 and O_2 with Air as Alternate – Electrolysis - H_2 Catalysis

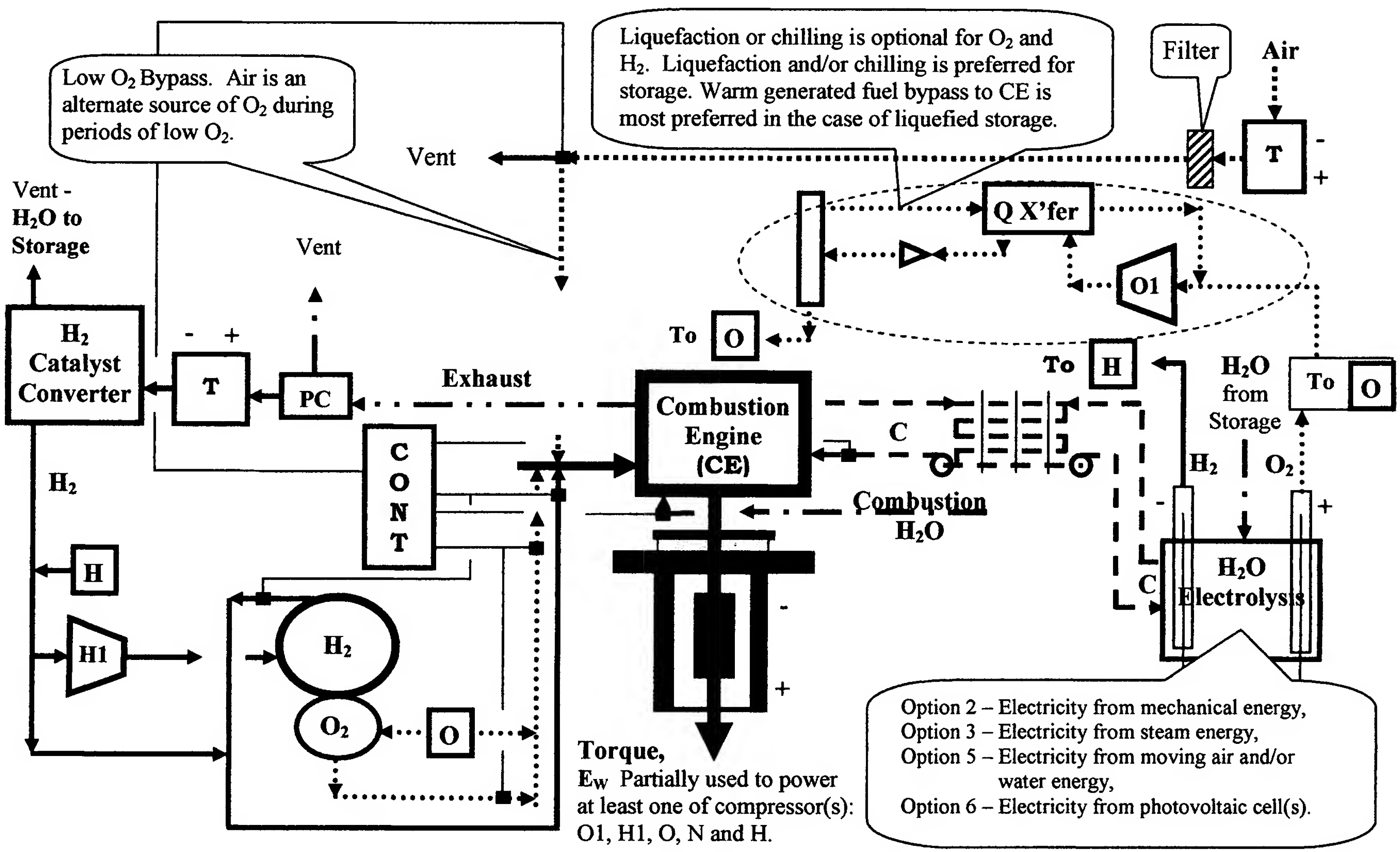


Figure 7

Combustion Fueled by H_2 and O_2 with Air as Alternate - Electrolysis - O_2 Distillation

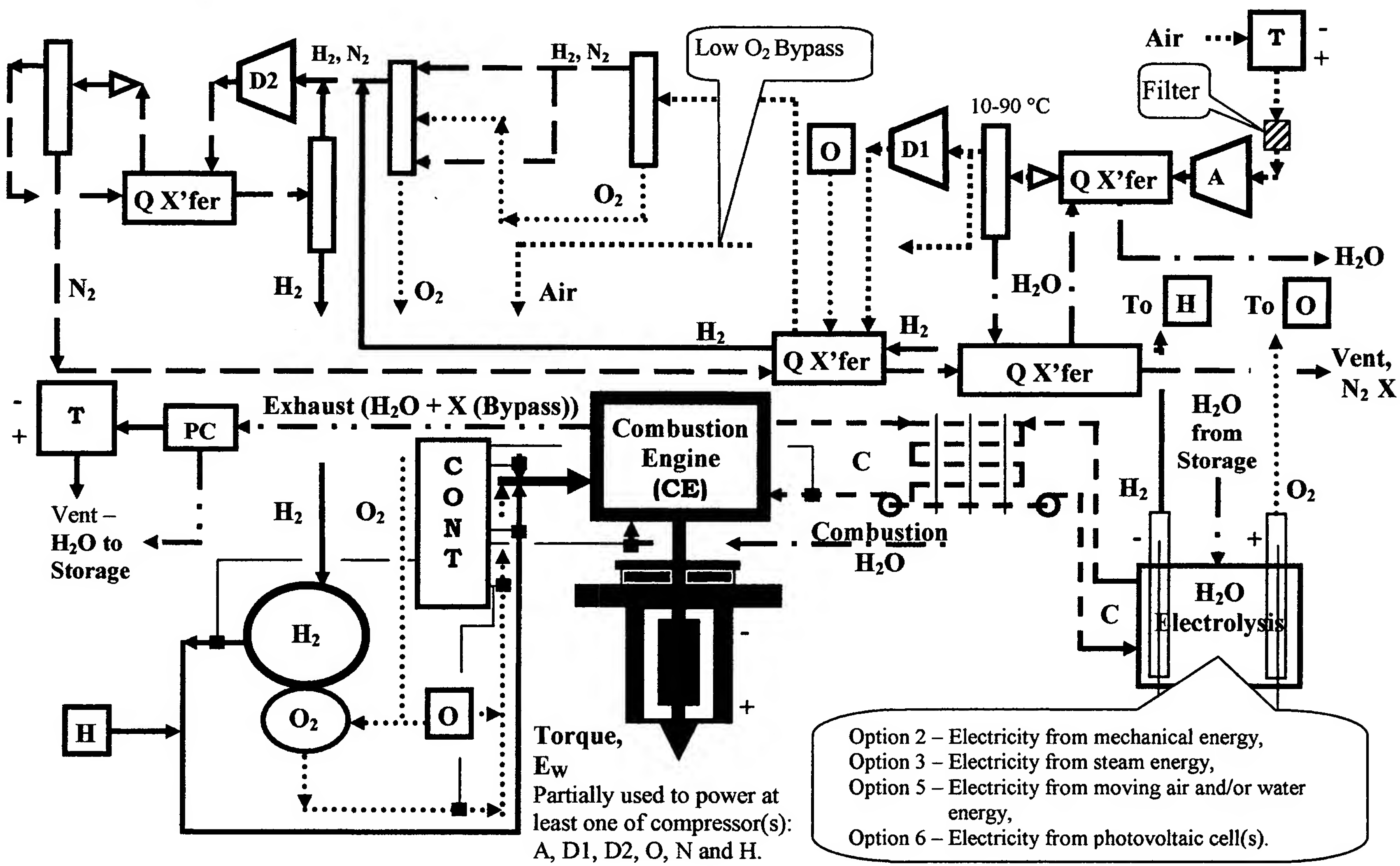
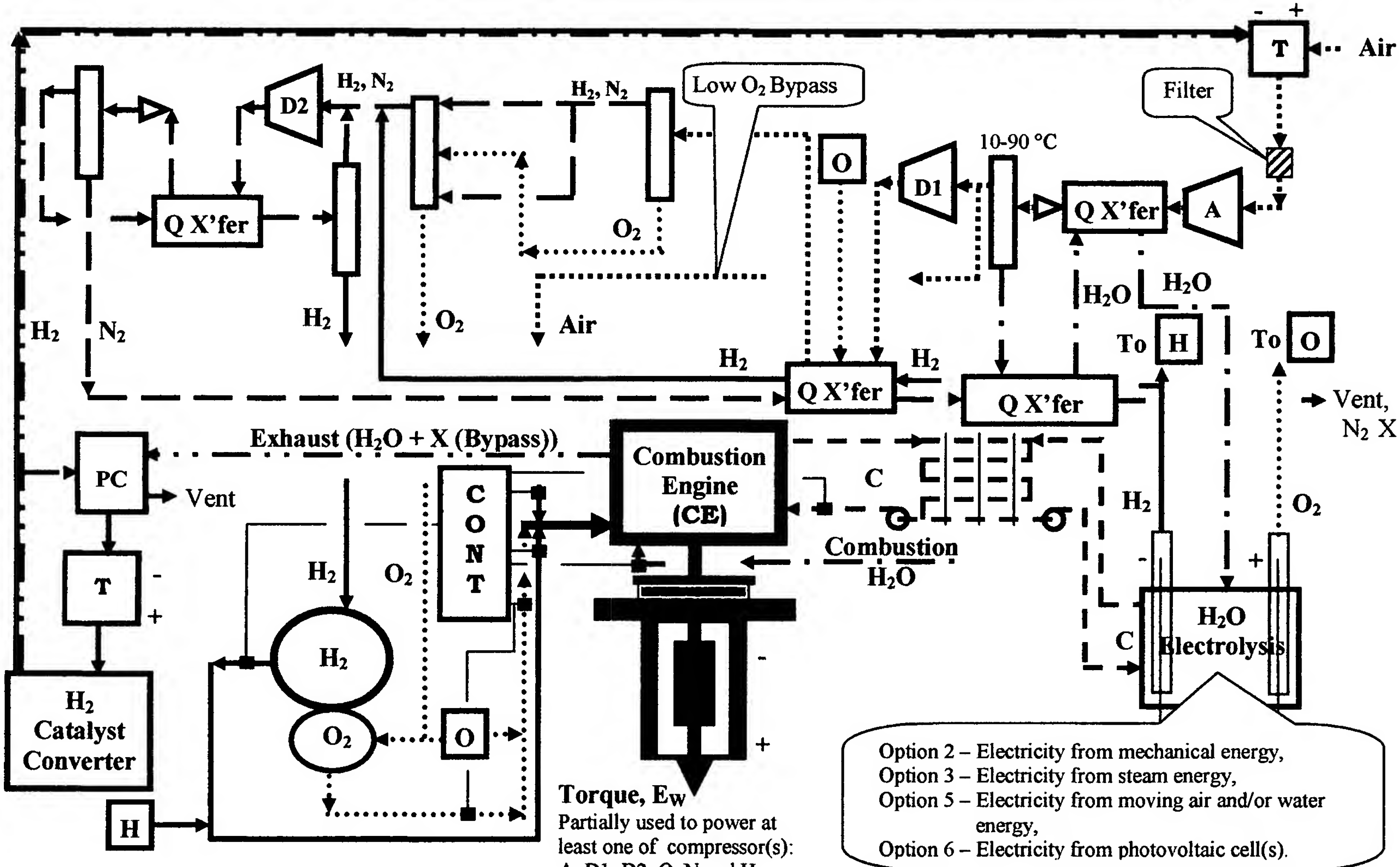


Figure 8

Combustion Fueled by H_2 and O_2 with Air as Alternate - Electrolysis - H_2 Catalysis - O_2 Distillation



Torque, E_W
Partially used to power at least one of compressor(s): A, D1, D2, O, N and H.

Figure 9

Combustion Fueled by H_2 and O_2 with Air as Alternate - O_2 Separation by Membranes or PSA

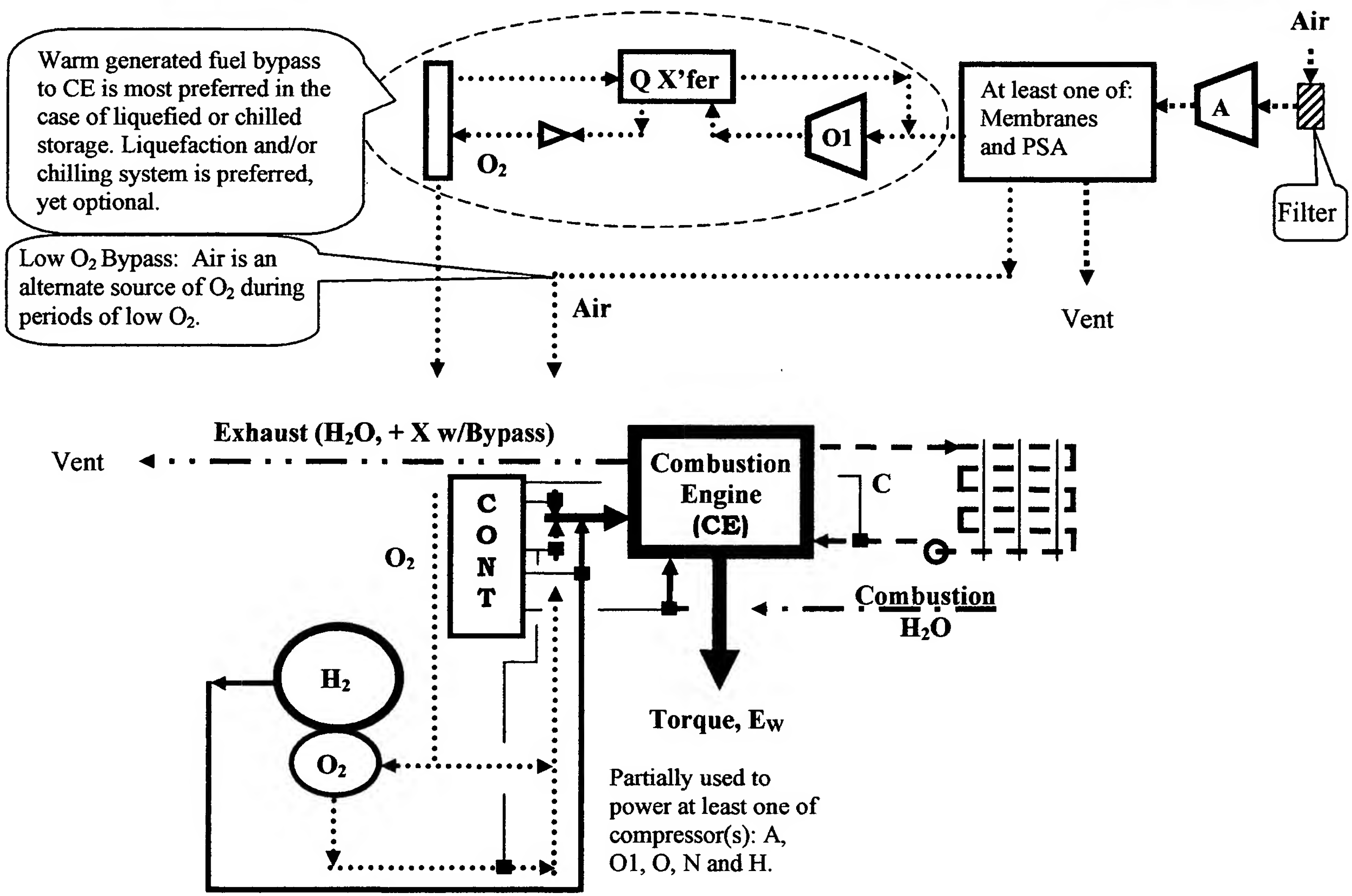


Figure 10

Combustion Fueled by H_2 and O_2 with Air as Alternate - Electrolysis - O_2 Separation by Membranes or PSA

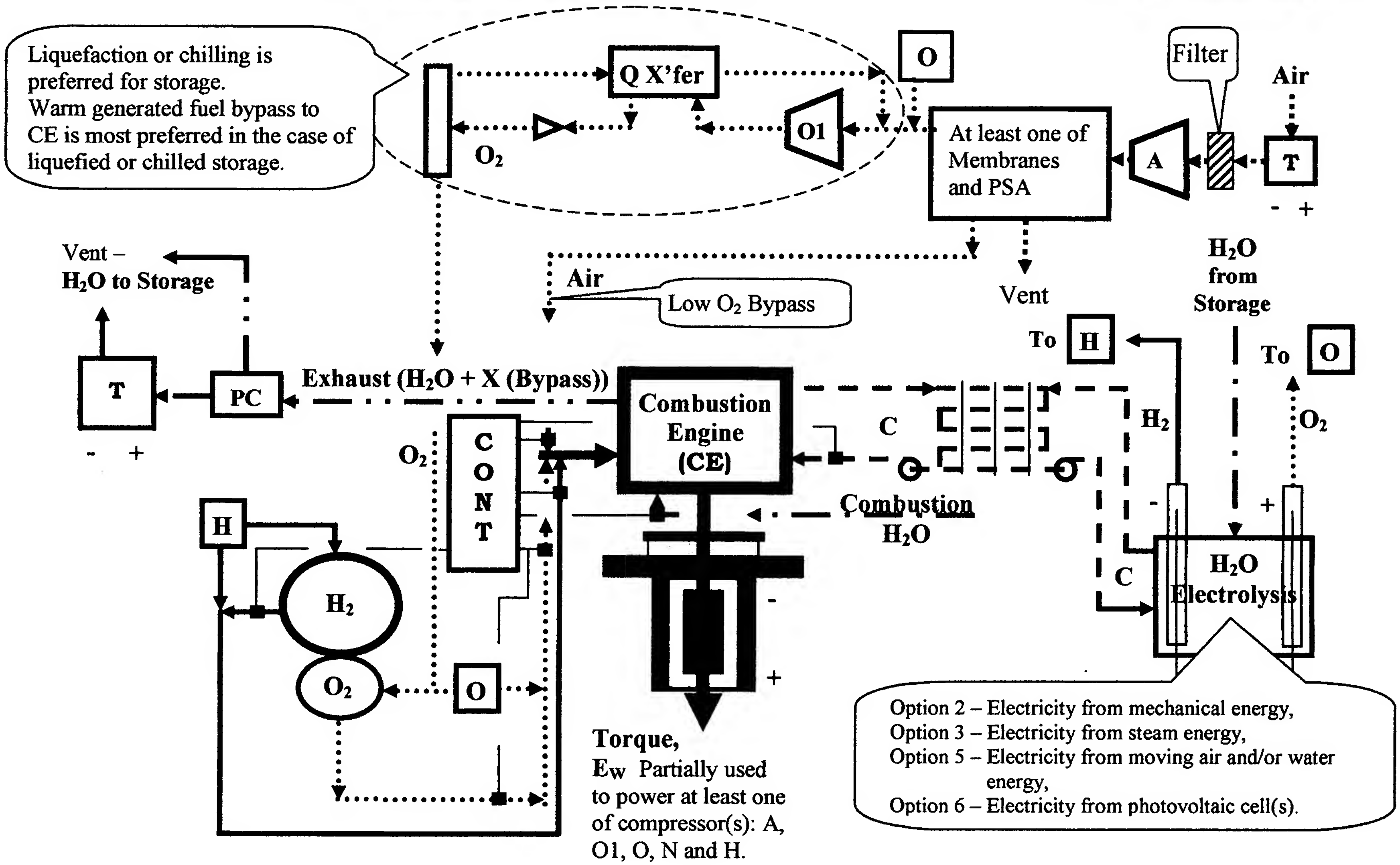


Figure 11

Combustion Fueled by H_2 and O_2 with Air as Alternate - Electrolysis - H_2 Catalysis O_2 Separation by Membranes or PSA

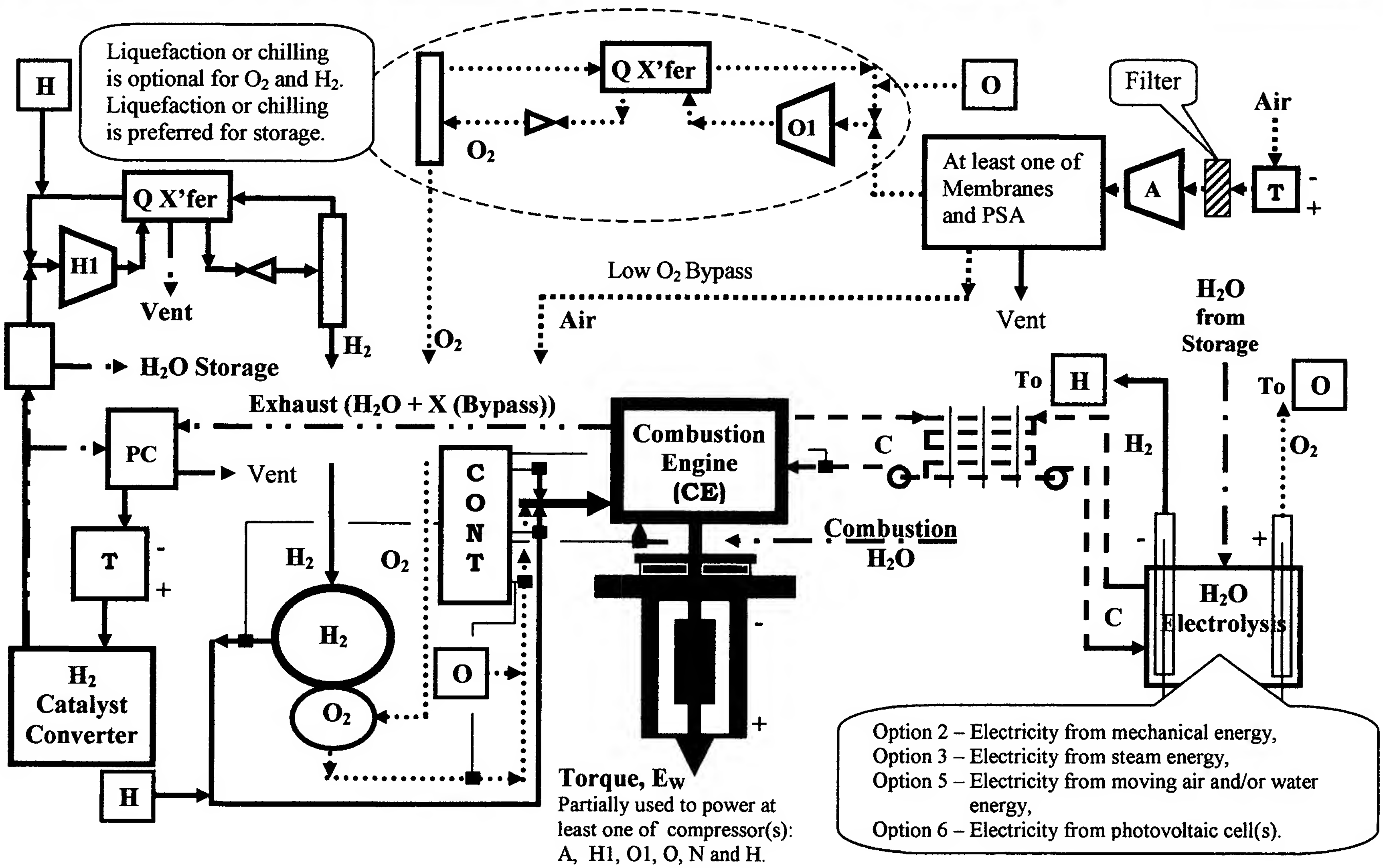


Figure 12

Combustion Fueled by H_2 and O_2 with Air as Alternate - H_2 Catalysis - O_2 Distillation

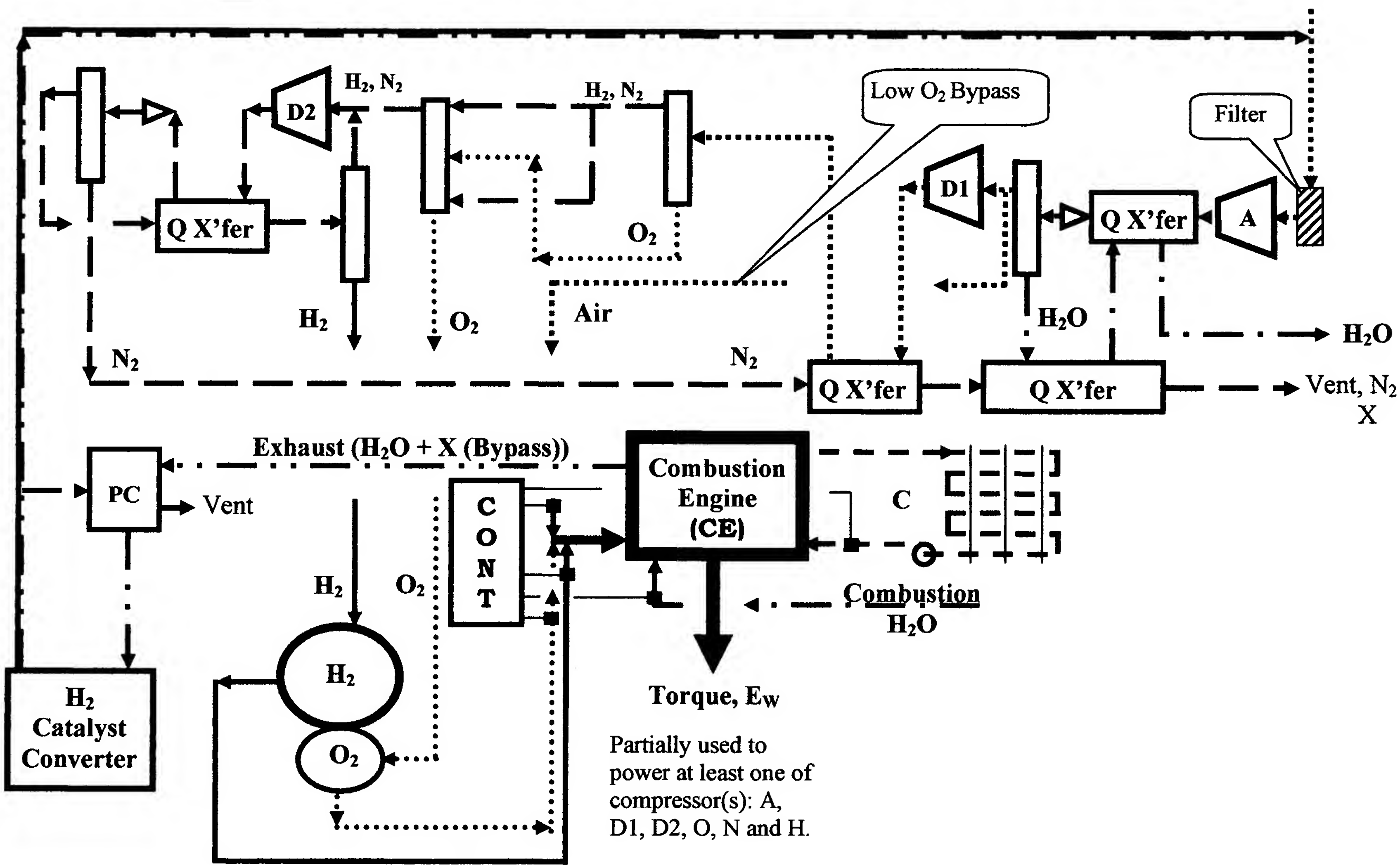


Figure 13

Combustion Fueled by H_2 and O_2 with Air as Alternate - H_2 Catalysis O_2 Separation by Membranes or PSA

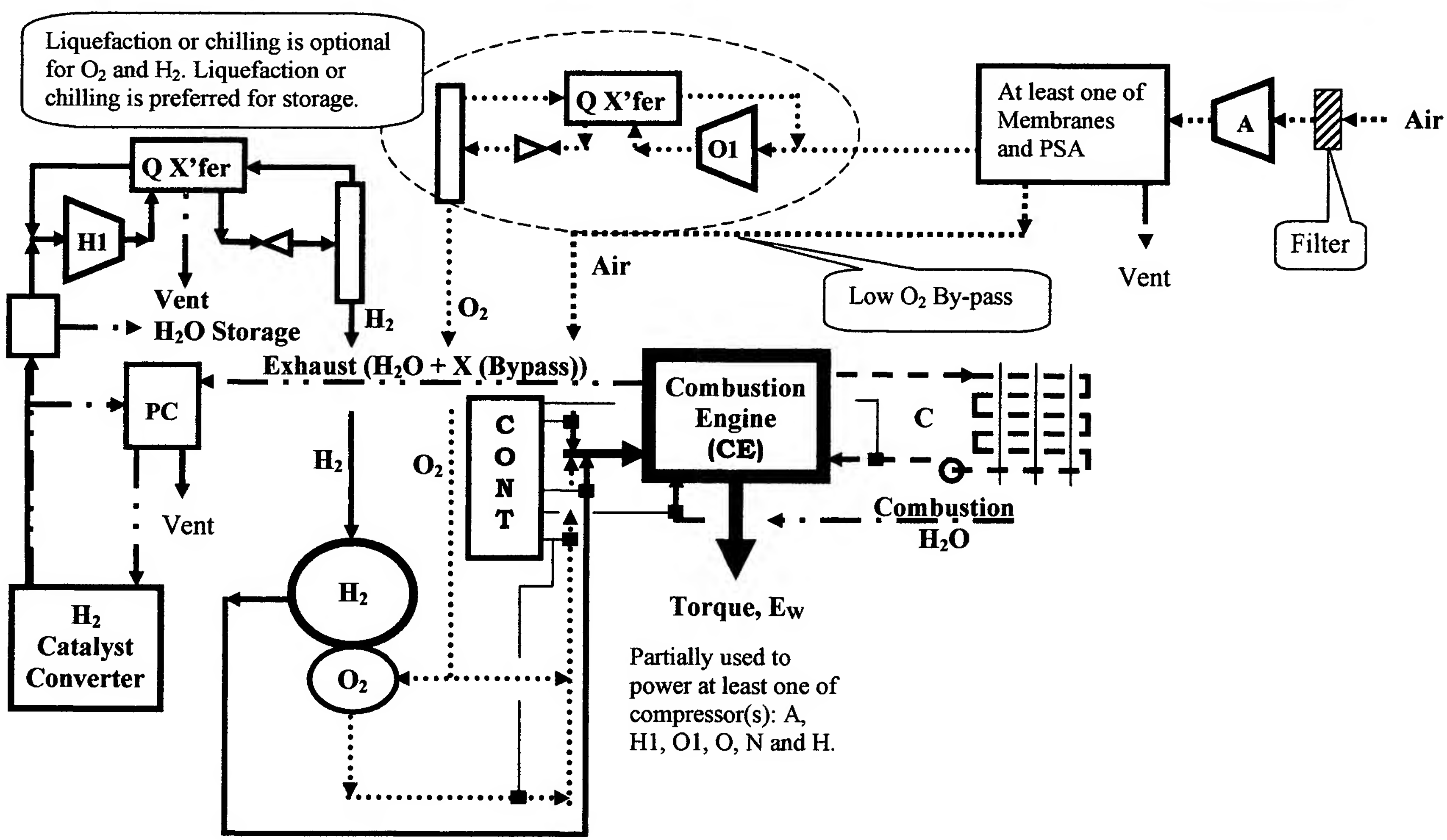


Figure 14
Combustion Fueled by H_2 and O_2 with Air as Alternate – H_2 Catalysis

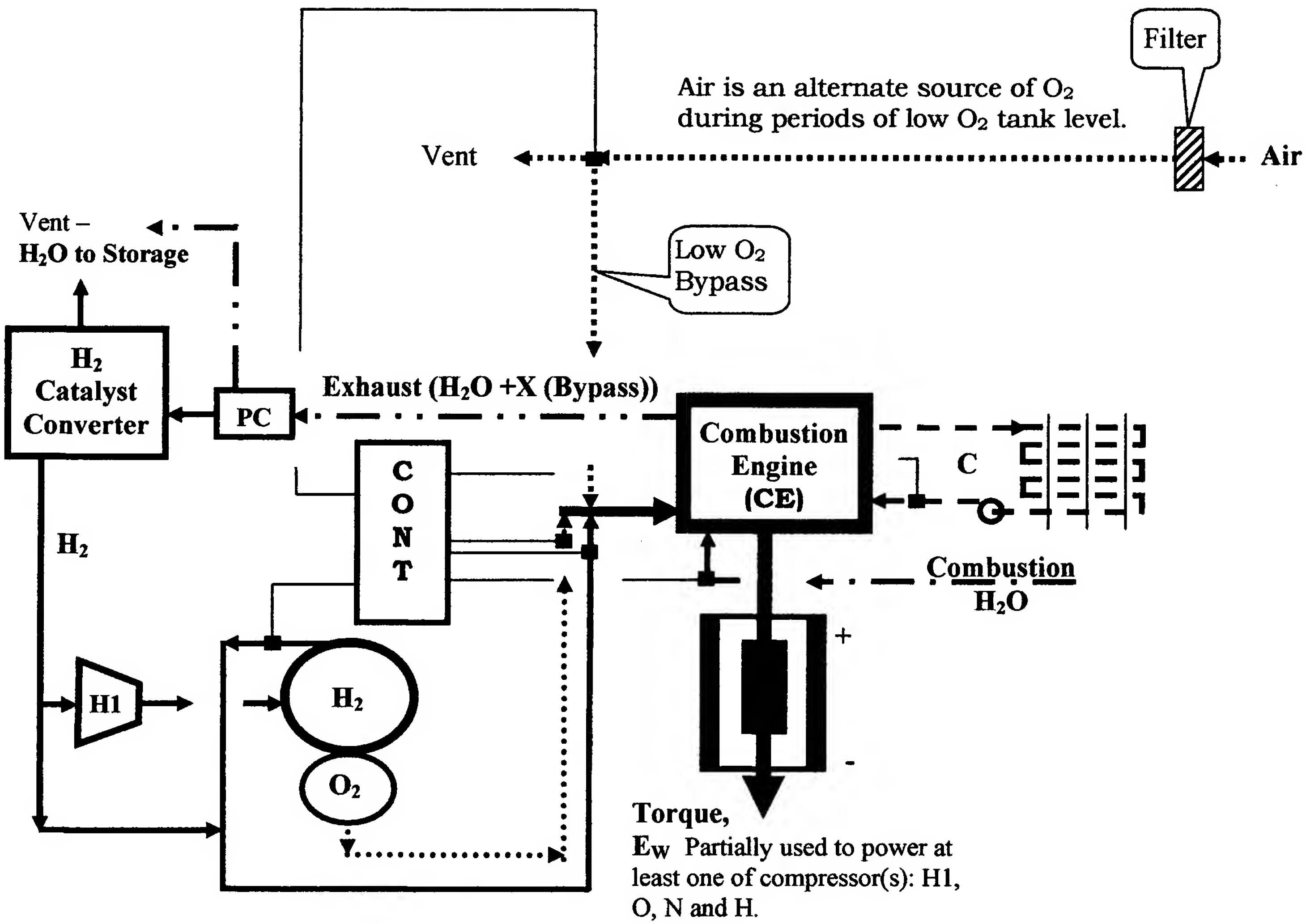


Figure 15

Combustion Fueled by H_2 and O_2 with Air as Alternate - O_2 Distillation

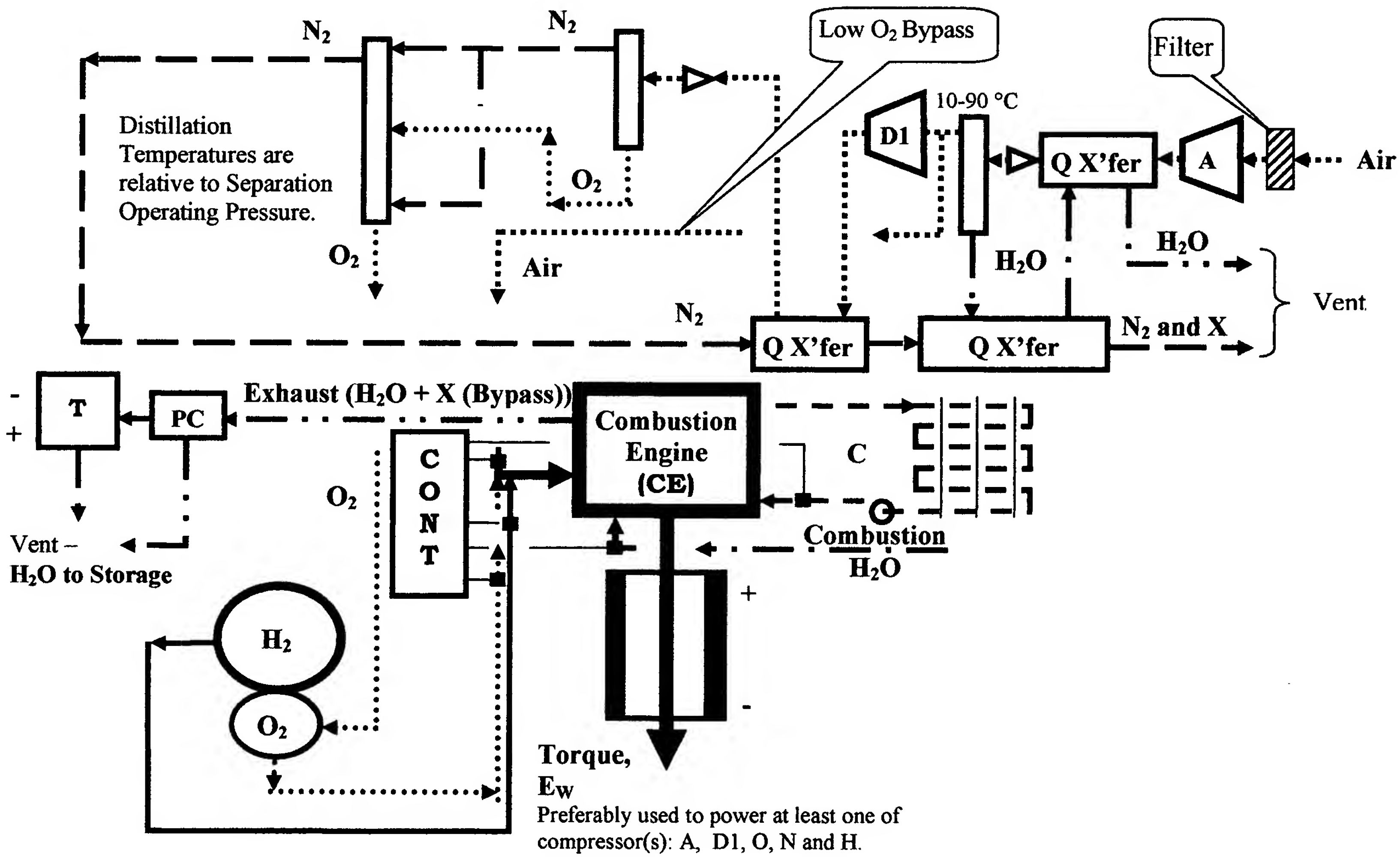


Figure 16
Combustion Fueled by H_2 and O_2 with Air as Alternate - O_2 Separation by Membranes or PSA

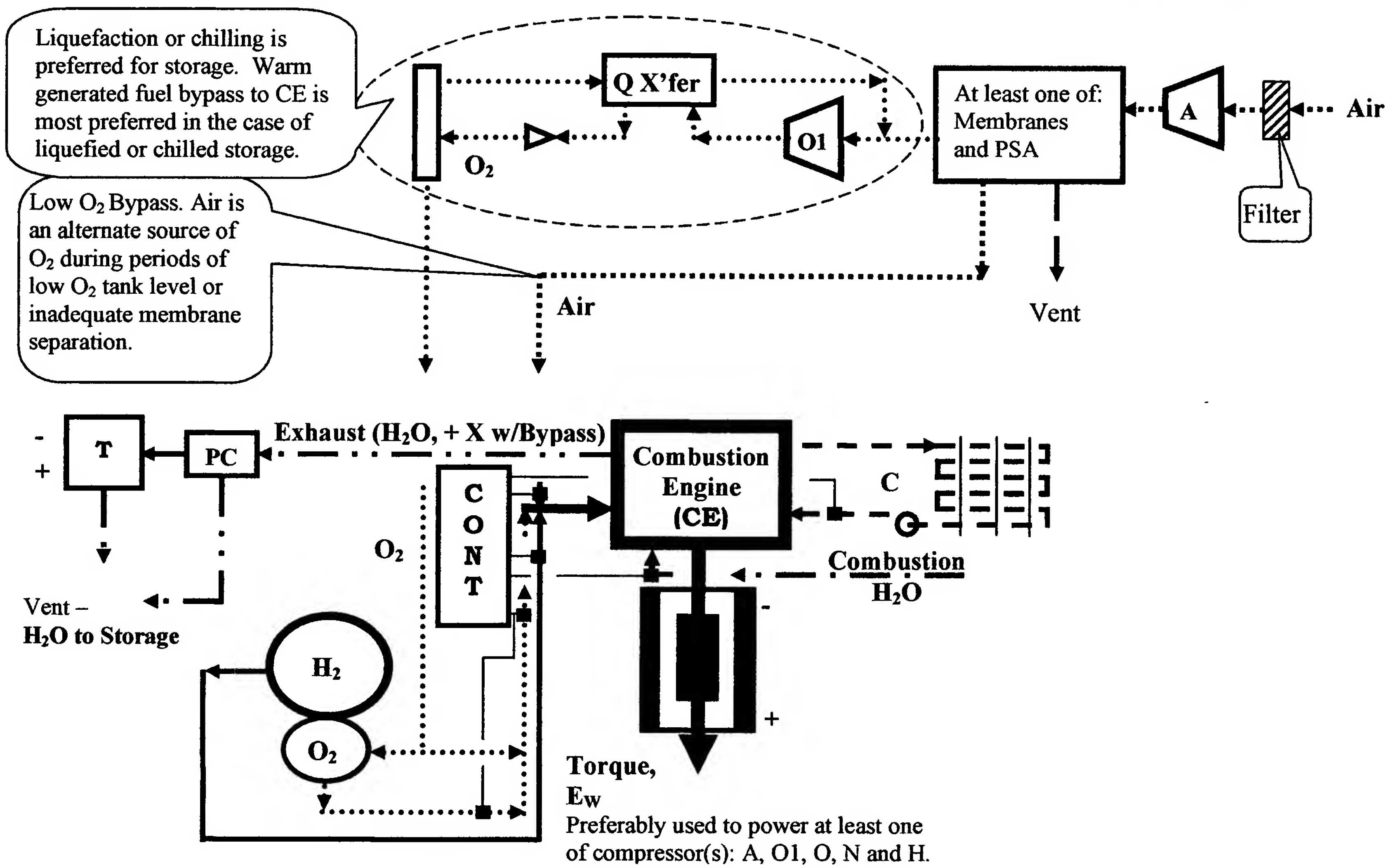


Figure 17

Combustion Fueled by H_2 and O_2 with Air as Alternate - H_2 Catalysis - O_2 Distillation

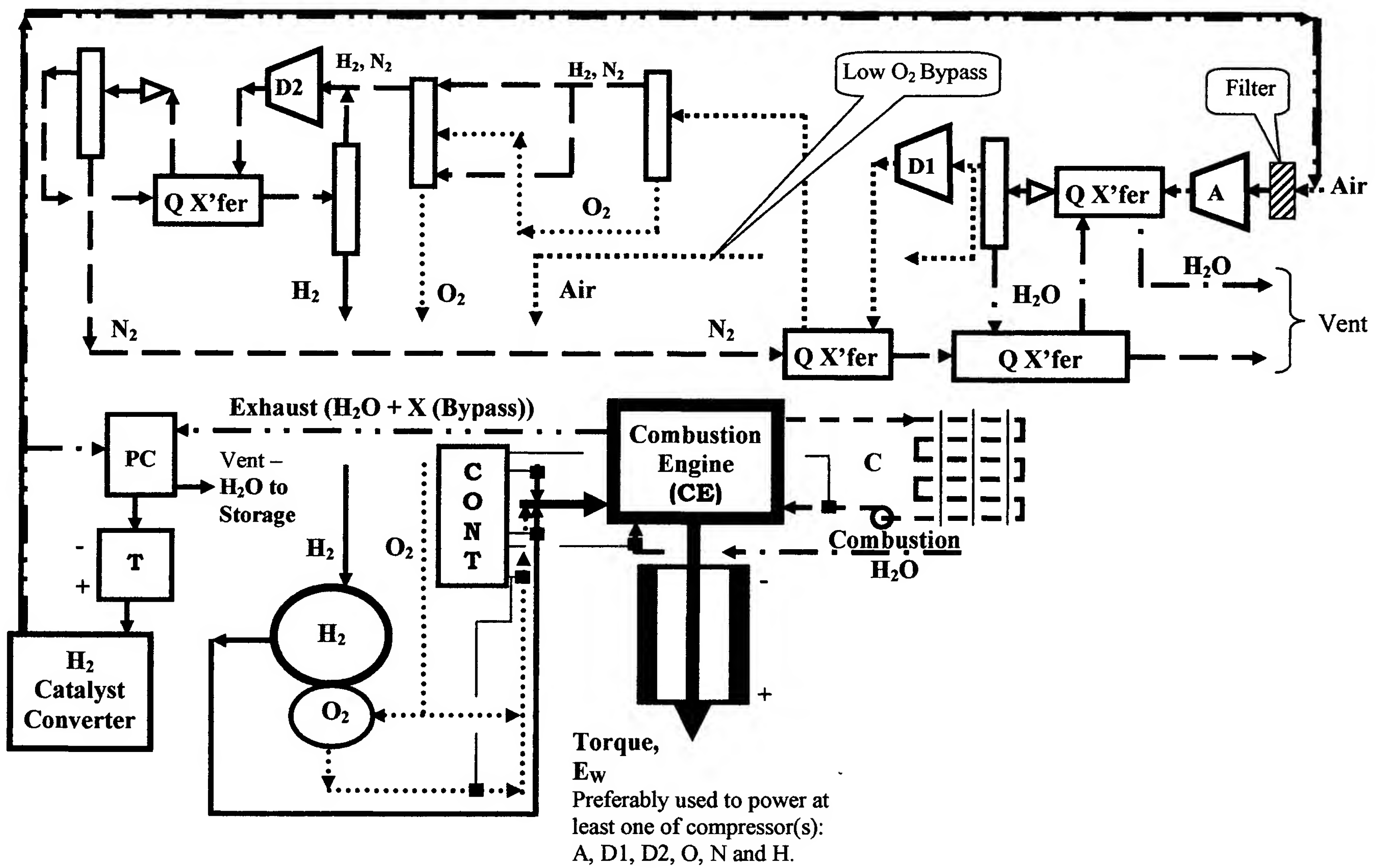


Figure 18

Combustion Fueled by H_2 and O_2 with Air as Alternate - H_2 Catalysis O_2 Separation by Membranes or PSA

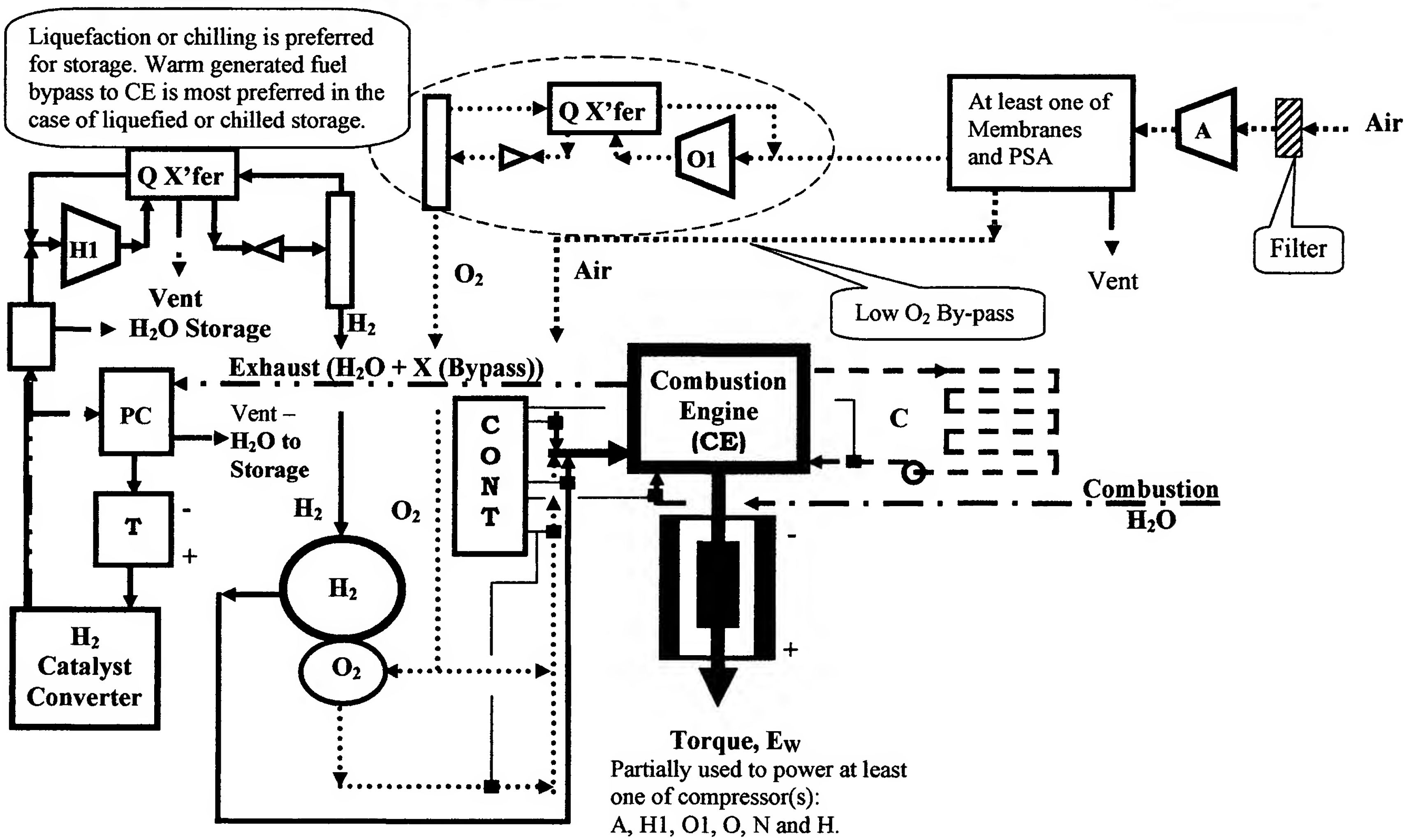


Figure 19
Combustion Fueled by H_2 and O_2 and/or Air - Fuel Preheating

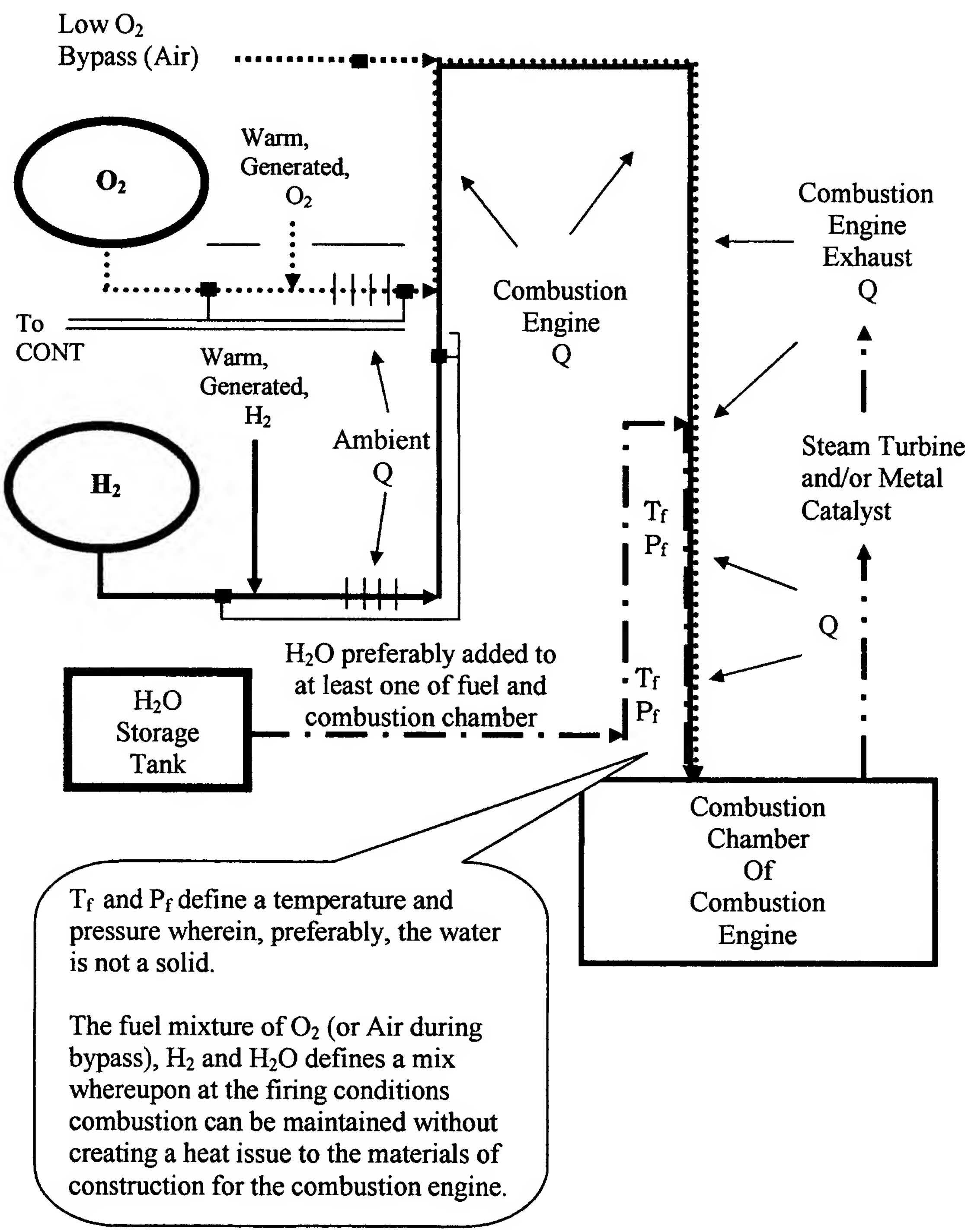


Figure 20
Combustion Fueled by H_2 and O_2 and/or Air - O_2 and H_2 Storage

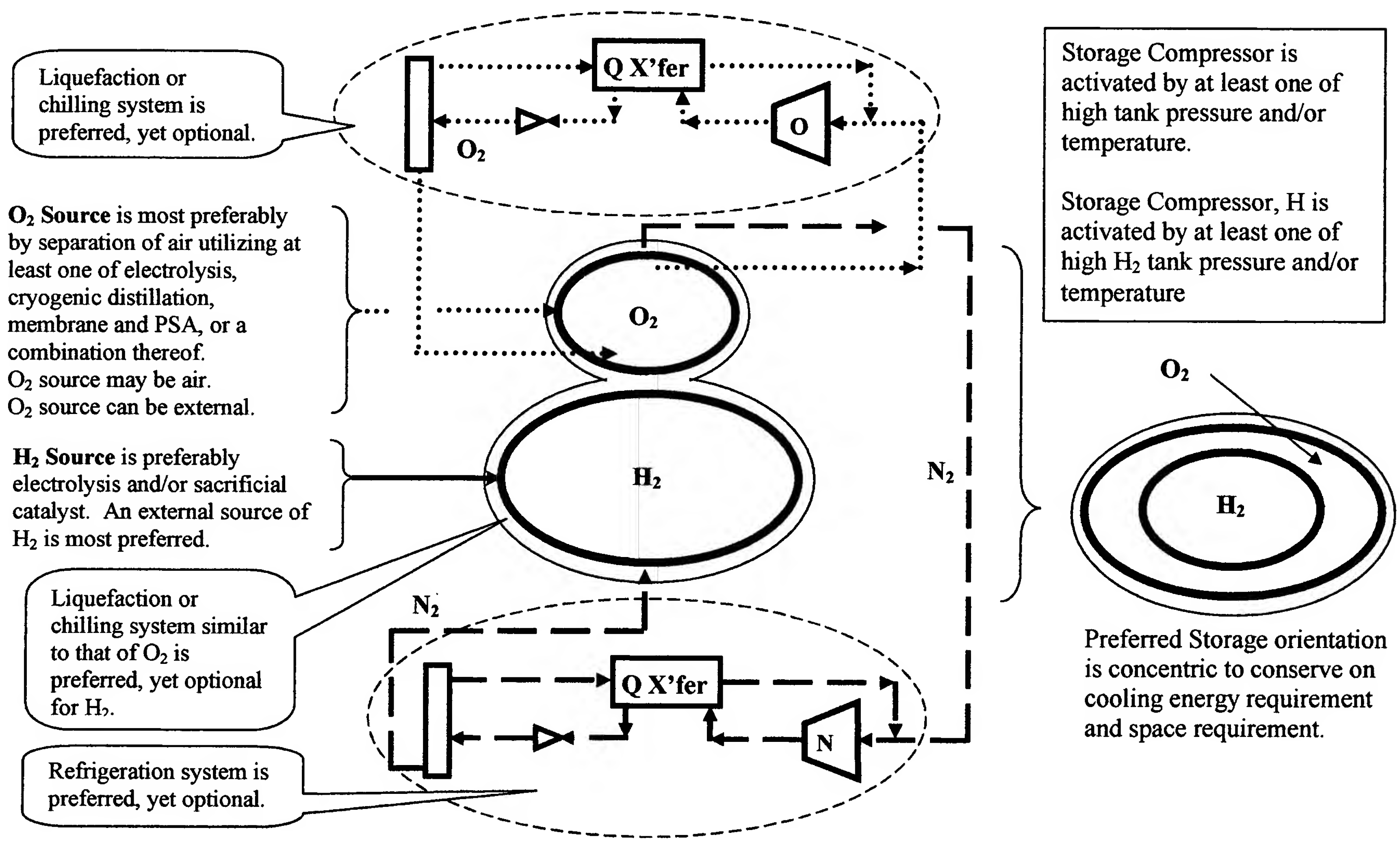


Figure 21
Steam Turbine Configuration(s)

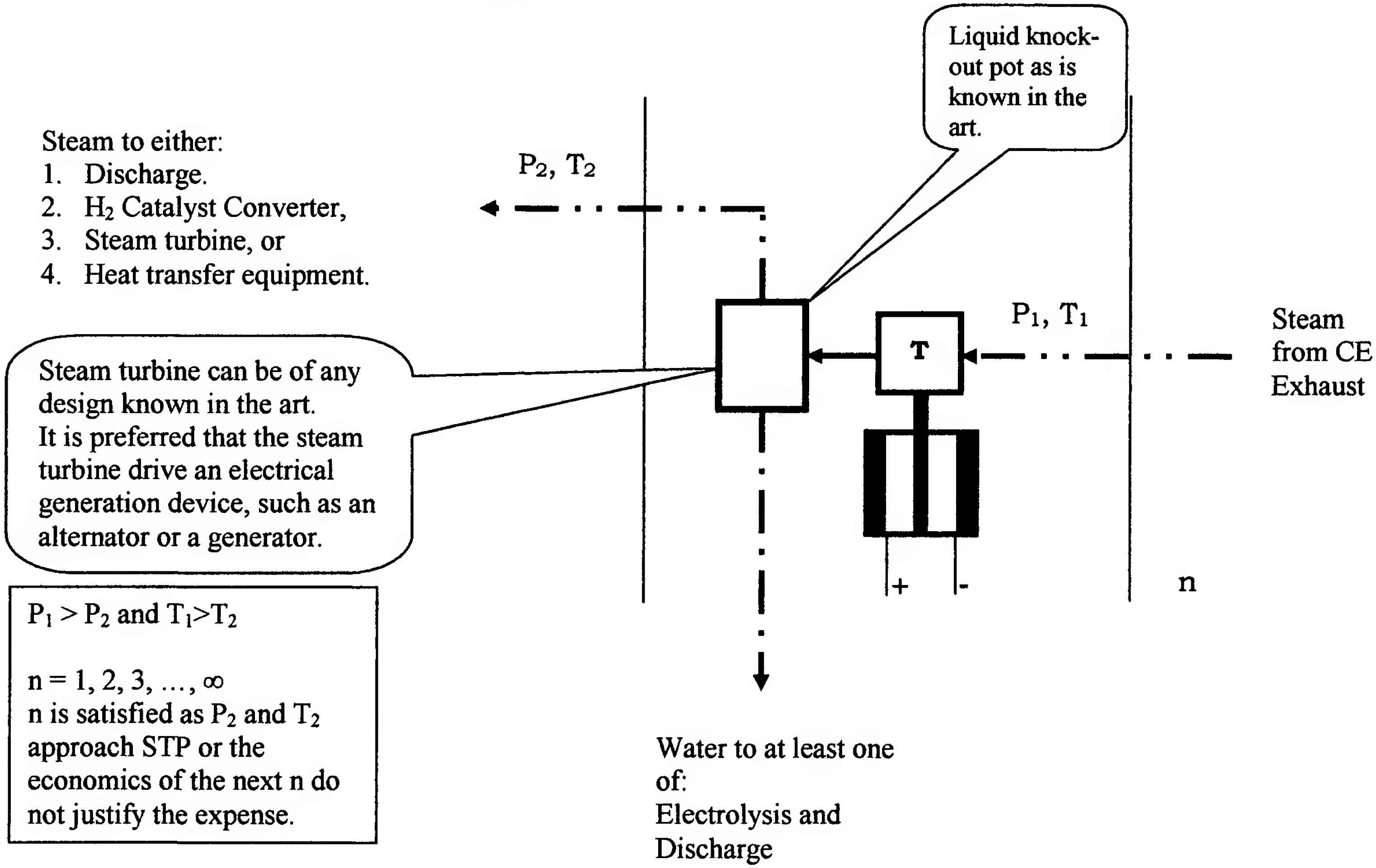


Figure 21A
In-Line Combustion and Steam Turbine Configuration(s)

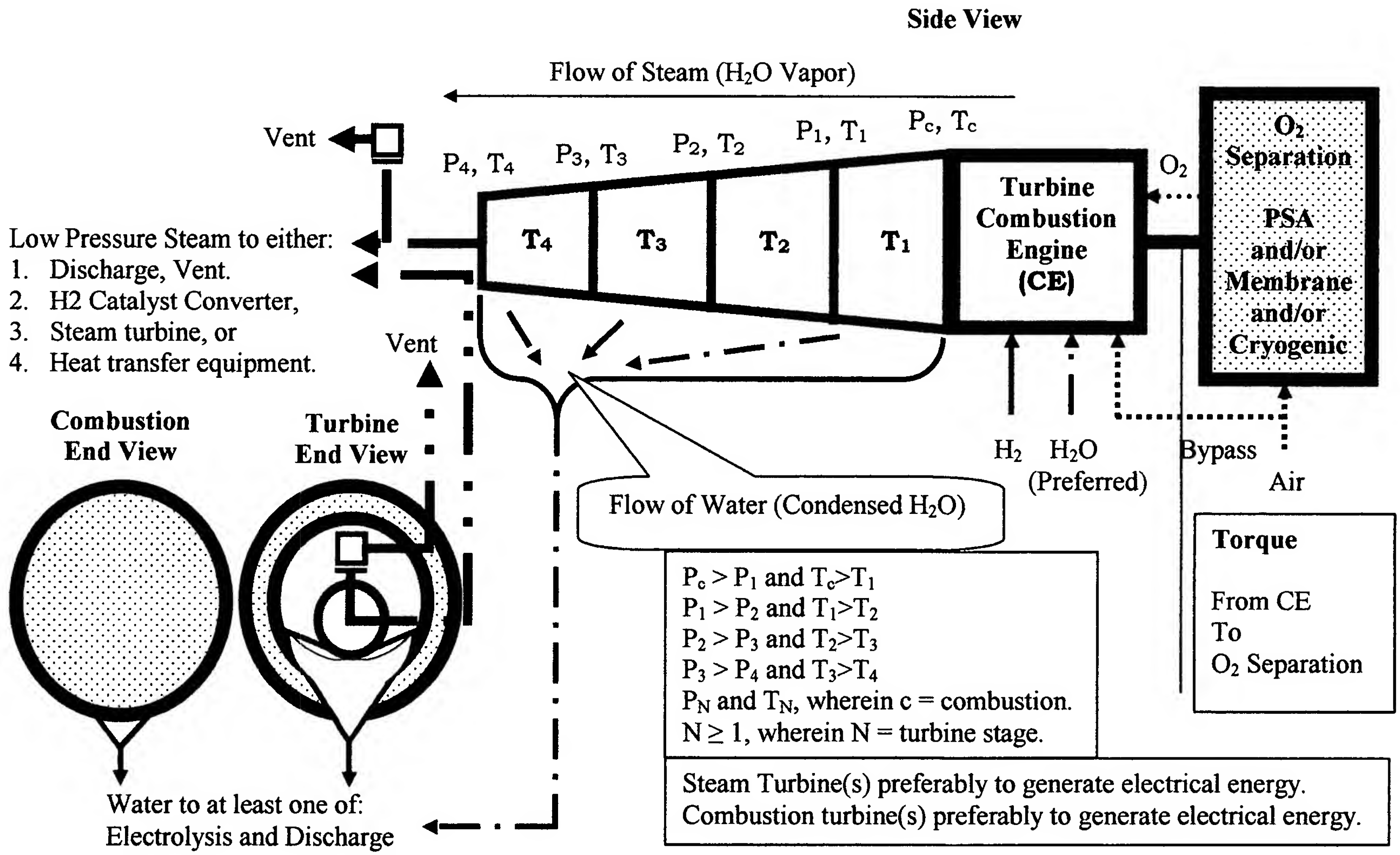


Figure 22
Air Movement Turbine Configuration(s)

$V_1 > V_2$, or $V_1 = V_2$

It is preferred that $V_1 > V_2$

$n = 1, 2, 3, \ldots, \infty$
n is satisfied as V_2 approaches 0 or the economics of the next n do not justify the expense or for transportation application, the drag force is too high (such would not be the case for a sail boat).

Air to at least one of:
1. Discharge.
2. Filter and Distillation,
3. Filter and PSA, or
4. Filter and membrane.

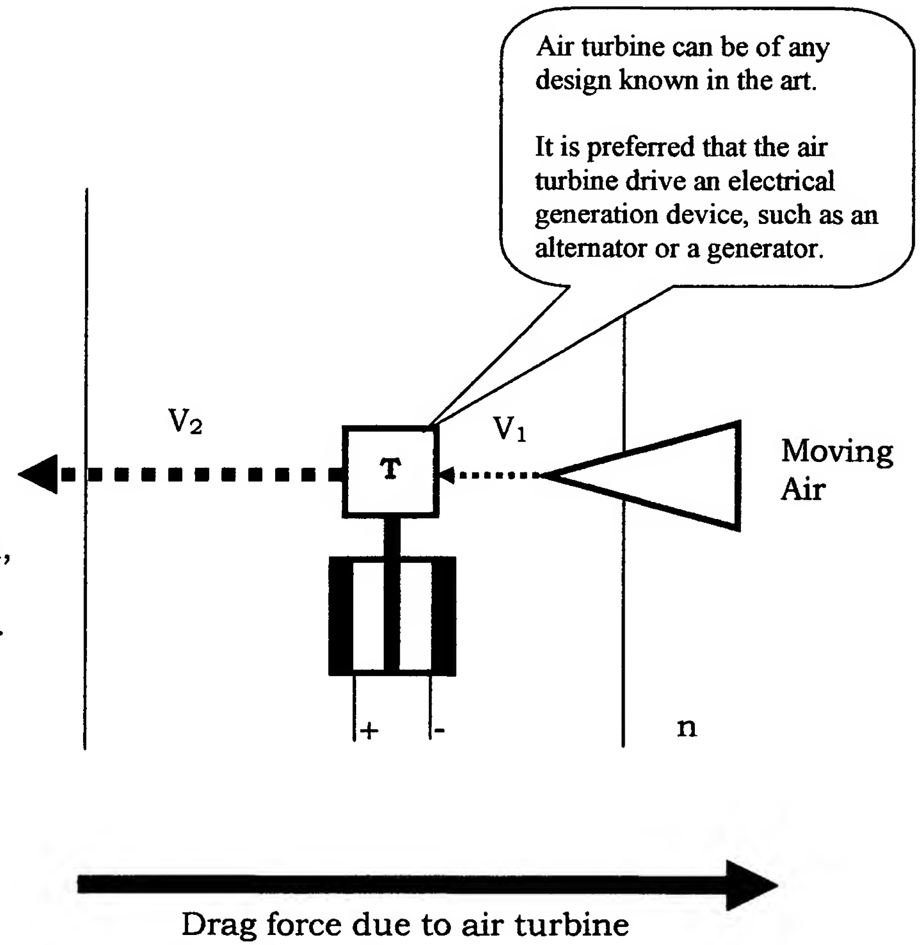
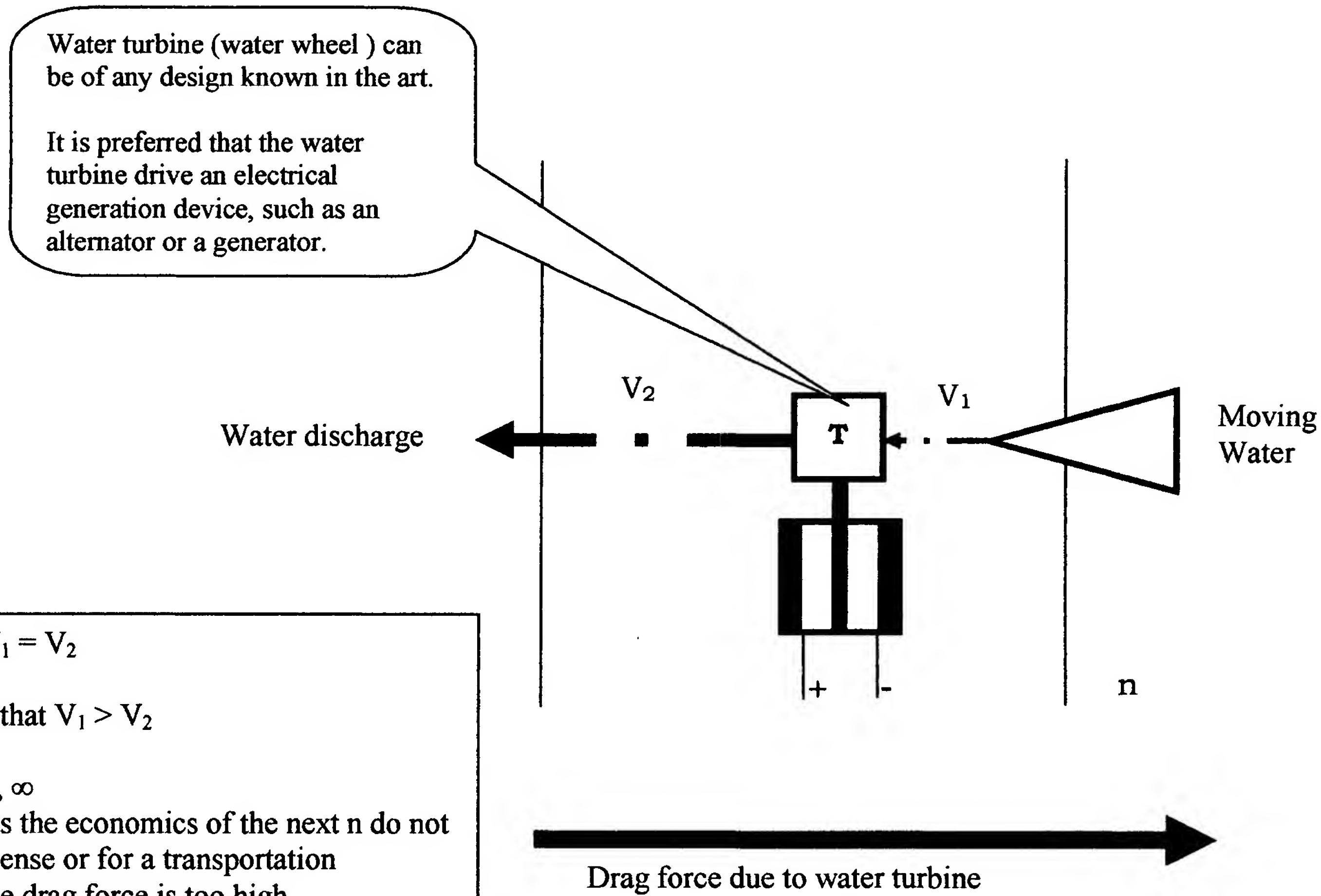


Figure 23
Horizontal Water Movement Turbine Configuration(s)



$V_1 > V_2$, or $V_1 = V_2$

It is preferred that $V_1 > V_2$

$n = 1, 2, 3, \ldots, \infty$
n is satisfied as the economics of the next n do not justify the expense or for a transportation application, the drag force is too high.

Figure 23A
Vertical Water Movement Turbine Configuration(s)

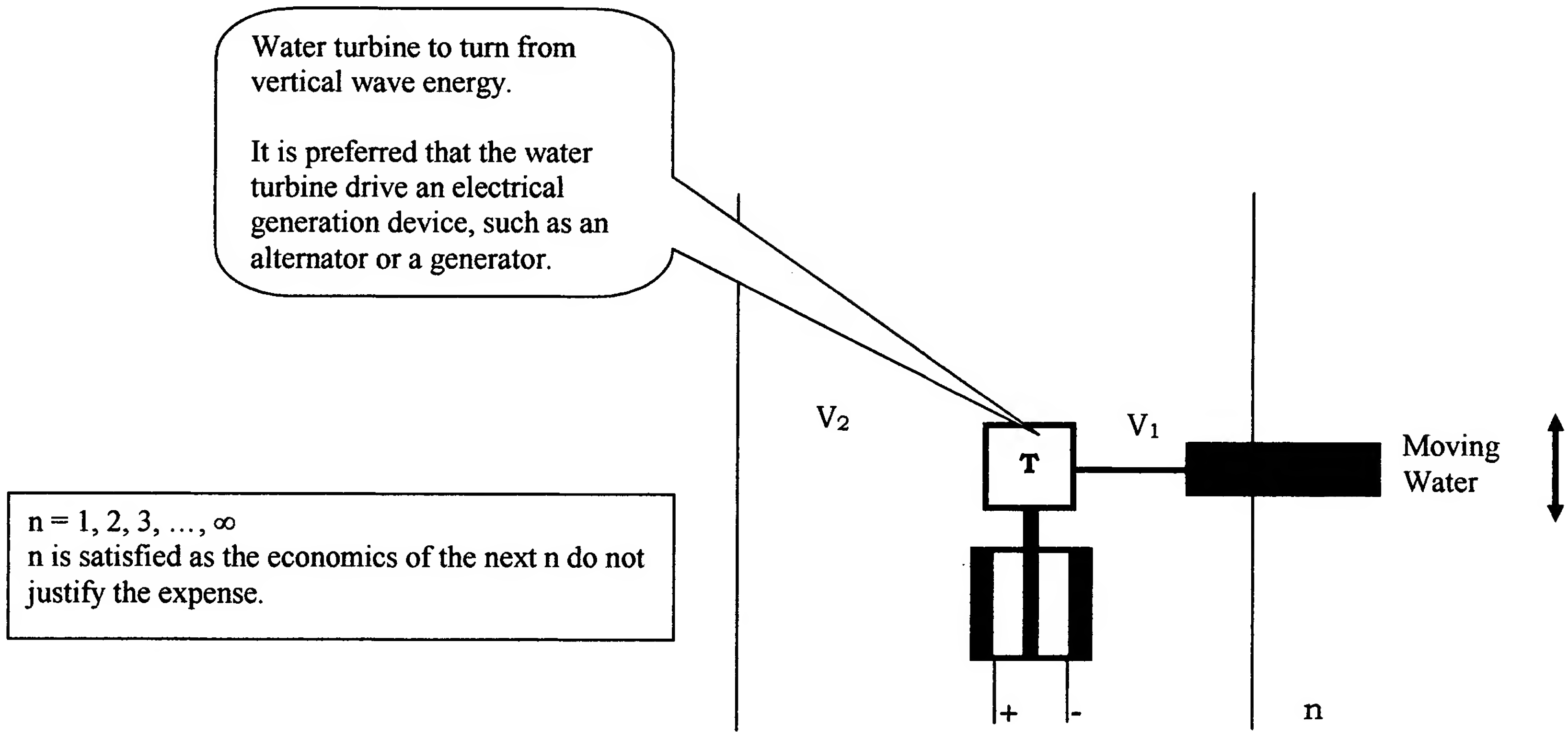


Figure 24
Pressure Control Configuration(s)